Petras, Siteia
The Pre- and Proto-palatial cemetery in context

Acts of a two-day conference held at the Danish Institute at Athens, 14-15 February 2015

Edited by
Metaxia Tsipopoulou
This volume is dedicated to all those individuals who participated over the years in the excavation, conservation, study, site development and publication of the results.

This lofty vision for Petras and its region was made possible by their hard work, dedication and support.
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‘Όσο ψηλά και αν ανεβεί λέξη μην πεις μεγάλη ‘πο χώμα σε ἐφτιαξέ ο θεός κι εκειά γυρίζεις πάλι’
Cretan *mantinada* for death
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The conference participants gathered in the courtyard of the Danish Institute at Athens 15 February 2015
List of Contributors

PHILIP P. BETANCOURT  
Department of Art History, Temple University  
2100 North 13th Street, Suite 2101, Philadelphia, PA 19122, USA  
pbbcourt1@aol.com

THOMAS M. BROGAN  
Director, INSTAP Study Center for Eastern Crete  
Pacheia Ammos, GR-72200 Ierapetra, Crete, Greece  
tombrogan@instapstudycenter.net

GERALD CADOGAN  
British School at Athens  
3 The Old Rickyard, Moreton Pinkney, Daventry, NN11 3TL, United Kingdom  
geraldcadogan2@gmail.com

MIRIAM G. CLINTON  
Assistant Professor of Art and Art History, Digital Mapping Specialist, Publication Team INSTAP  
Department of Art and Art History, Rhodes College, 2000 North Parkway, Memphis, TN 38112, USA  
miriam.clinton@gmail.com

ISABELLE CREVECOEUR  
Université de Bordeaux, Pessac, France  
UMR 5199 PACEA, CNRS  
isabelle.crevecoeur@u-bordeaux.fr

HEIDI M.C. DIERCKX  
Associate Professor of Classical Studies, Elmira College  
One Park Place, Elmira, NY 14901, USA  
hdierckx@elmira.edu

SUSAN C. FERRENCE  
Director of Publications, INSTAP Academic Press  
2133 Arch St., Ste. 301, Philadelphia, PA 19103, USA  
susanferrence@instappress.com

ALESSANDRA GIUMLIA-MAIR  
AGM Archeoanalisi  
Via E. Toti 8, I – 39012, Merano (BZ), Italy  
Via della Costa 4, I – 39012, Merano (BZ), Italy  
giumlia@yahoo.it

DONALD C. HAGGIS  
Nicholas A. Cassas Term Professor of Greek Studies, Department of Classics, University of South Carolina at Chapel Hill  
212 Murphey Hall, CB 3145, Chapel Hill, NC 27599-3145  
dchaggis@email.unc.edu

VALASIA ISAAKIDOU  
36 Beaumont Street, Oxford, Oxfordshire, OX1 2PG, United Kingdom  
valasia.isaakidou@arch.ox.ac.uk

CRISTINA ICHIM  
PhD Student, Institute of Archaeology, University College London, United Kingdom  
Institute of Archaeology, University College London, 31-34 Gordon Square, London, WC1H 0PY, United Kingdom  
ichimcris@gmail.com
KATERINA BOUKALA-KARKAGIANNI  
PhD Student, Department of History and Archaeology,  
National and Kapodistrian University of Athens  
Fotomara 18, GR-11743, Athens, Greece  
kmpoukala@hotmail.com

SOTIRIA KIORPE  
Graduate Student, Aristotle University of Thessaloniki  
GR-54124, Thessaloniki, Greece  
skiorpe@hist.auth.gr

CARL KNAPPETT  
Department of Art, University of Toronto, Canada  
Department of Art, 6063 Sidney Smith Hall, 100 St.  
George St., Toronto, M5S 3G3, Ontario, Canada  
carl.knappett@utoronto.ca

GARIFALIA KOSTOPOULOU  
Petras Excavations Project  
Pasifae St. 10, GR-72100, Hagios Nikolaos, Crete, Greece  
garifaliakost@yahoo.gr

OLGA KRZYSZKOWSKA  
Deputy Director, Institute of Classical Studies  
Senate House, Malet Street, London, WC1E 7HU, United Kingdom  
olgak2001@outlook.com

COLIN F. MACDONALD  
British School at Athens  
Chersiphronos 8, GR-11631, Athens  
Colin.f.macdonald@gmail.com

EVI MARGARITIS  
Assistant Professor, Science and Technology in Archaeology Research Center (STARC), The Cyprus Institute  
Guy Ourisson Building – Athalassa Campus, P.O. Box 27456, 1645 Nicosia, Cyprus  
evimargaritis@gmail.com

JAMES D. MUHLY  
Professor Emeritus, University of Pennsylvania  
American School of Classical Studies at Athens, Souidias St. 54, GR-10676, Athens, Greece  
jimmuhly@yahoo.com

EFTHYMIA NIKITA  
Assistant Professor, Science and Technology in Archaeology Research Center (STARC), The Cyprus Institute  
20 Konstantinou Kavafi Street, 2121, Aglantzia, Nicosia, Cyprus  
efi.nikita@gmail.com

ELENI NODAROU  
INSTAP Study Center for Eastern Crete  
Pacheia Ammos, GR-72200 Ierapetra, Crete, Greece  
enodarou@yahoo.gr

DIAMANTIS PANAGIOTOPOULOS  
Director, Institute of Classical Archaeology, Heidelberg University  
Karl Jaspers Centre, Voßstraße, Building 4400, 69115, Heidelberg, Germany  
diamantis.panagiotopoulos@zaw.uni-heidelberg.de

YANNIS PAPADATOS  
Associate Professor of Prehistoric Archaeology  
Department of History, Archaeology and History of Art, National and Kapodistrian University of Athens, School of Philosophy, University Campus, Zographou, GR-15784, Greece  
gpapadat@arch.uoa.gr

LEFTERIS PLATON  
Assistant Professor of Prehistoric Archaeology  
Department of History, Archaeology and History of Art, National and Kapodistrian University of Athens, School of Philosophy, University Campus, Zographou, GR-15784, Greece  
eplaton@arch.uoa.gr
ADRIANOS PSYCHAS  
Graduate Student, Department of History and Archaeology, National and Kapodistrian University of Athens  
New Tiryns, GR-21100, Nafplio, Greece  
adriano_naf@hotmail.com

MARIA RELAKI  
Associate Lecturer, The Open University, United Kingdom  
29 Smeeton Road, Kibworth Beauchamp, Leicestershire LE8 0LG, United Kingdom  
m.relaki@open.ac.uk

DAVID W. RUPP  
Director, Canadian Institute in Greece  
Voulgaroktonou 68, GR-11473, Athens, Greece  
drupp@brocku.ca

AURORRE SCHMITT  
Aix Marseille Université, Marseille, France  
UMR 7268 ADES, CNRS  
Aurore.Schmitt@univmed.fr

ILSE SCHOEP  
Department of Archaeology, Catholic University Leuven  
PB 3313, 3000 Leuven, Belgium  
Ilse.Schoep@arts.kuleuven.be

ANNA SIMANDIRAKI-GRIMSHAW  
Humbolt-Universität zu Berlin, Herman von Helmholtz – Centre for Cultural Techniques  
Unter den Linden 6, Room 3029, D-10099, Berlin, Germany  
pytna@yahoo.co.uk

TATIANA THEODOROPOULOU  
Wiener Laboratory for Archaeological Science of the ASCSA  
Souidias 54, GR-10676, Athens, Greece  
tatheod@hotmail.com

PETER TOMKINS  
University of Sheffield, Department of Archaeology  
Northgate House, West Street Sheffield S1 4ET, United Kingdom  
pdtomkins@yahoo.co.uk

SEVASTI TRIANTAPHYLLOU  
Associate Professor in Prehistoric Archaeology and Osteoarchaeology  
Department of History and Archaeology, Aristotle University of Thessaloniki, GR-54124, Thessaloniki, Greece  
strianta@hist.auth.gr

MARIAS TSIBOUKAKI  
PhD Candidate, Department of History and Archaeology, National and Kapodistrian University of Athens  
L. Porfiria 10, Iraklio, GR-14122, Athens, Greece  
mariatsiboukaki@gmail.com

METAXIA TSIPPOPOULOU  
Director Emerita, Hellenic Ministry of Culture, National Archive of Monuments, Director of the Petras Excavations  
Voulgaroktonou 68, GR-11473, Athens, Greece  
mtsipopoulo@yahoo.gr

CHRISTINA TSORAKI  
Faculty of Archaeology, Leiden University, Laboratory for Material Culture Studies  
Einsteinweg 2, 2333 CC Leiden, The Netherlands  
c.tsoraki@arch.leidenuniv.nl

GIOVANNIS VAVOURANAKIS  
Associate Professor of Prehistoric Archaeology: Theoretical Archaeology  
Department of History, Archaeology and History of Art, National and Kapodistrian University of Athens, School of Philosophy, University Campus, Zographou, GR-15784, Greece  
gavour@arch.uoa.gr
### Abbreviations

#### Archaeological periods
- **EBA** Early Bronze Age
- **EH** Early Helladic
- **EM** Early Minoan
- **FN** Final Neolithic
- **LH** Late Helladic
- **LM** Late Minoan
- **LN** Late Neolithic
- **LBA** Late Bronze Age
- **MBA** Middle Bronze Age
- **MH** Middle Helladic
- **MM** Middle Minoan
- **MN** Middle Neolithic

#### Other
- **A.S.L.** Above Sea Level
- **diam.** diameter
- **gr** gram
- **h** height
- **kg** kilogram
- **w** width
- **wt** weight
- **th** thickness
- **lt** liter
- **MMD** Mean Measure of Divergence
- **MNI** Minimum Number of Individuals
- **NISP** Number of Identifiable Specimens
- **SM** Archaeological Museum, Siteia
- **vol.** volume

#### Petras Area
- **HT** House Tomb
- **R** Room
- **L** Lakkos
- **P** Petras
- **PTSK** Petras Cemetery

The form of the English language for the native speakers (British or American) was the author’s choice. For the non-native speakers the American form was used.
## Bibliographic Abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AAA</td>
<td>Archaiologika Analekta Athinon</td>
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<tr>
<td>ActaPalaeobot</td>
<td>Acta Palaiobotanica</td>
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<tr>
<td>AJA</td>
<td>American Journal of Archaeology</td>
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<td>AJPA</td>
<td>American Journal of Physical Anthropology</td>
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<td>AJS</td>
<td>American Journal of Sociology</td>
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<td>AnnMathStat</td>
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<td>AR</td>
<td>Archaeological Reports</td>
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<td>Arachne</td>
<td>Arachne – (on-line access to the CMS, with corrected information and enhanced illustrations) <a href="http://arachne.uni-koeln.de/drupal/?q=de/node/access">http://arachne.uni-koeln.de/drupal/?q=de/node/access</a> date March 2016.</td>
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<td>ArchDelt</td>
<td>Archaeologikon Deltion</td>
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<td>ArchEph</td>
<td>Archaeologike Ephemeris</td>
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<td>ASAtene</td>
<td>Annuario della Scuola Archeologica Italiana di Atene</td>
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<td>BAR-IS</td>
<td>British Archaeological Reports, International Series</td>
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<td>BCH</td>
<td>Bulletin se correspondance hellénique</td>
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<td>BICS</td>
<td>Bulletin of the Institute of Classical Studies of the University of London</td>
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<td>BSA</td>
<td>Annual of the British School at Athens</td>
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<td>CMS</td>
<td>Corpus der minoischen und mykenischen Siegel, Berlin 1964-2000, Mainz 2002-</td>
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<td>CretChron</td>
<td>Kretika Chronika</td>
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<td>EtCret</td>
<td>Études Crétoises</td>
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<tr>
<td>JAS</td>
<td>Journal of Archaeological Science</td>
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<td>JMA</td>
<td>Journal of Mediterranean Archaeology</td>
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<td>Kentro</td>
<td>Kentro: The Newsletter of the INSTAP Study Center for East Crete</td>
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<td>MA</td>
<td>Monumenti Antichi</td>
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<td>OJA</td>
<td>Oxford Journal of Archaeology</td>
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<td>Prakt</td>
<td>Praktika tes en Athenai Archaeologikes Etaireias</td>
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<tr>
<td>SIMA</td>
<td>Studies in Mediterranean Archaeology</td>
</tr>
<tr>
<td>SMEA</td>
<td>Studi Micenei ed Egeo-Anatolici</td>
</tr>
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Abstract

How can we interpret finds of charred plant remains in ritual contexts? Are such finds incidental or the result of deliberately destructive and transformative acts? Recent work on plant remains in archaeological deposits has revolutionised our understanding of fundamental aspects of the past: agriculture, domestication, environmental change, diet, economy and daily life. A key missing element has been the place of ritual. This paper explores the use of plants in ritual and funerary contexts, analysing a completely new source of data for Europe and the Mediterranean: a large dataset of archaeobotanical remains from Prehistoric Greece.

Ritual, cult and religion are subjects that have been a focus of Greek archaeology, centering on such aspects as architecture, pottery and other material culture and employing theoretical models, especially concerning mortuary practices. For the Greek Bronze Age, it has been suggested that religious rituals, festivals and major rites of passage commonly involved specific types of feasting and drinking, mainly on the basis of pottery assemblages and more rarely on animal bone evidence.

The limited case studies of plant remains published hitherto in Greece, mainly from funerary contexts, interpret the deposition of the plant remains as offerings, remnants of meals, or in symbolic association with the agricultural year, and with memory. However the new evidence considered here shows that ritual use and deposition of plant material is a more widespread – and diverse – phenomenon. The abundant charred plant remains found at the house tombs of Petras will offer alternative and additional interpretations, highlighting the common element of these contexts: the deposition of charred plant remains.

This emphasises the importance of fire in ritual practices, and suggests the presence of carbonised plants demonstrate an act not only of destruction but also as a positive act of preservation through transformation and sacrifice. This paper will use Petras as a case study in comparison with other assemblages from Bronze Age Greece and will show that the importance of transformation and preservation through fire seems to be very strongly embedded in ritual practice through time and space; it will also show how the practice of burning and depositing plant material is widespread and deep-rooted not only in Greek Prehistory but also in later times. This paper aims to understand the fields of action within which such practices were constituted and the affordances of burnt destruction and transformation in the reproduction of Greek ritual practice.
The reconstruction of agricultural practices, farming regimes and the everyday has been a focus of research in Crete, making the island one of the most well-studied areas (on the basis of archaeobotanical remains at least) for the Bronze Age. However, as is the case with the rest of Greece, most archaeobotanical studies have focused on domestic assemblages, leaving other contexts such as burials and funerary processes rather unexplored.

Archaeological research on mortuary practices in Prehistoric Greece has moved beyond social status, symbolism and ideology to discuss key issues of agency, emotion, memory, identity, personhood and the human body. One focus is on the role of food and drink in funerary contexts, interpreted in acts of feasting or offering to the dead, and as tokens of memory. The same foods can be employed on a number of levels, from daily consumption to special events marking particular occasions or rites of passage. When incorporated in mortuary practices, eating and drinking have a mnemonic power, and the emotions and senses stimulated by food are combined with those generated by the heightened experiences of death and burial. In the Aegean Bronze Age archaeological remains sometimes suggest episodes of feasting as part of specific mortuary practices, and the most informative evidence for such activities comes from the pottery and vessels which indicate food and drink consumption. Some contexts also indicate libations or the intentional destruction of objects, sometimes regarded as the killing of vessels, figurines, weapons or ground stone tools. Very rarely, evidence from organic remains such as animal bones has been used to approach the social roles and meanings of sacrifice and we have examples from Pylos and Methana in the Mycenaean context; recently evidence for ritual sacrifice at altars dated to the Early Mycenaean period have also been revealed, from the altar of Zeus at Mt Lykaion.

One aspect thus far overlooked, however, is the role of plants, perhaps because until very recently only a limited dataset from the Prehistoric Aegean has been available for interpretation, which can readily be summarized. The site of Mavropigi, located in Macedonia, has revealed a large quantity of glume wheats deliberately deposited around the skeletons in two early Neolithic graves, possibly as an offering within the context of the burial ritual. Grass pea concentrations were found at the late Neolithic site of Kremasti, also in Macedonia, in pits associated with animal and human burials and also with the intentional burial of ‘special’ objects. These finds have been interpreted as ritual offerings of pulses on specific occasions in the lifecycle of people or settlements and it has been argued that “pulses were ritually consumed in the form of burnt, buried seeds”. The Late Bronze Age chamber tombs at Ayia Sotira in the Peloponnese revealed limited quantities of plant remains, such as cereal grains, glume wheat chaff, legumes and fruits, in the dromoi and the chambers of the tombs; these have been tentatively interpreted as evidence of possible preparation, consumption or offering of food.

On Crete, the Early Bronze Age tombs at Lebena and Krasi have produced olive remains. Olive remains were found in a bowl at Zakros, interpreted as an offering, but not connected with a funerary context; there is also a charred cereal concentration in an Early Neolithic burial at Knossos. At the Pre-

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1 Livarda & Kotzamani 2014; Brogan et al. 2013; Margaritis 2013a; 2013b; forthcoming b.
2 Voutsaki 2010; Papadimitriou 2011; Boyd 2016; Moutafi 2015.
3 Hamilakis 1999.
4 Palmer & van der Veen 2002.
5 Williams 2004.
6 Branning 1993; Legarra Herrero 2014; Vavouranakis 2014.
7 Hamilakis & Konsolaki 2004.
8 Starkovich et al. 2013.
9 Valamoti 2009.
10 Valamoti et al. 2011.
11 Smith et al. 2014.
12 Tomkins pers. comm.
palatial tholos tomb at the site of Livari, fragments of olive stones were found in several samples, while no other plant remains were revealed. Large portions of the human bones and the funerary material (pottery, obsidian, metals) had clear traces of intense fire, but there were absolutely no traces of fire inside the tholos. It has therefore been suggested that the primary burials were made outside the tomb, then there was an intermediate stage involving the burning of the skeletal remains and associated funerary material, followed by secondary deposition inside the tholos tomb. It is open to question whether the olive stones entered the process as fuel for the fire or were deposited deliberately with the other materials.

The site of Petras comes as a very valuable addition to the limited organic remains available and represents a perfect case study to observe mortuary practices within a very specific context. The example of Petras is very important as detailed and extensive sampling has been practised in every excavation season and in this way it is possible not only to interpret the archaeobotanical remains in each context but also to make comparisons both between the different house tombs and also with other areas such as the ‘ceremonial areas’. An additional advantage of the site of Petras is its use through time, so it is possible to draw comparisons between different periods in the same locale, and observe how certain practices developed.

This contribution focuses on two house tombs and the area characterized as Ceremonial Area 1, dated to the Pre- and the Protopalatial periods. House Tomb 3 (Prepalatial), and Room 1 in particular, has revealed large quantities of grape and olive remains in the form of seeds, coming mainly from the northern area of the room. Most of the pips and olive stones are in a fragmented state of preservation due to post-depositional damage. In addition, a few fragmented barley grains were also present in the assemblage, belonging to the hulled variety. Barley grains are either of the two- or six-row variety. For the two-rowed variety, all kernels are straight and symmetrical and each ear contains only two vertical rows of fertile spikelets. In the six-rowed form the lateral grains are “often slightly bent and somewhat asymmetrical” and the ears have six vertical rows of fertile spikelets. Due to their fragmentation it was not possible to determine whether they belonged to two- or six-row grains. However, a single seed had this asymmetrical shape, which was not a result of deformation due to carbonization. Therefore, six-row barley is present in the assemblage, though the possibility of the presence of two-row as well cannot be excluded.

The most numerous finds come from House Tomb 5 (Prepalatial), and specifically, from Rooms 10 and 12. Room 10 has revealed only grape remains but in substantial quantities, while Room 12 has revealed a broader repertoire of seeds such as grape, olive, pomegranate and flax seeds.

The pomegranate deserves more attention, both as it is a find that does not appear in the archaeobotanical record very often in prehistory and also because of its connection with ritual practices.

This find of pomegranate represents one of the very few known from Crete, the others coming from Monastiraki, Gournia and Mochlos. The fruit forms as a large and fleshy berry with a hard outer coat containing many pulp-encased seeds; in the above cases only the seeds have survived. The cultivated form (Punica granatum L.) probably originated from the area of northeastern Turkey and the southern Caspian regions.

In a review of the available evidence for the pomegranate in the eastern Mediterranean, Ward discusses two main categories. The first consists

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13 Papadatos & Sofianou 2015.

14 Zohary et al. 2011.

15 Sarpaki & Kanta 2011.

16 Watrous et al. 2015.

17 Margaritis forthcoming b.


of archaeological finds imitating pomegranates, such as vases, pendants and beads. The second comprises archaeobotanical remains. The first category of finds comes mostly from elite residences, tombs, burials and shipwrecks, from Iran, Turkey, Egypt, the Levant, Cyprus and Greece, dated from the 4th to the 2nd millennium BC. The archaeobotanical remains come specifically from Tiryns, Arad, Tell es-Saidiyeh, Tell Gezer, and Tell Hesi Jericho, Tell Brak, Shiloh, Tell el-Daba, Tomb of Djehuti, Thebes, Hala Sultan Tekke and the Uluburun shipwreck. All these sites are dated from the early 3rd to the 2nd millennium, providing an idea of the expansion route of the tree and its products into the Mediterranean and Greece.

For Greece and the Aegean, it has been previously suggested that the earliest iconographic evidence of pomegranate comes from the Middle Bronze Age and the first archaeobotanical finds from a 1200 BC elite residence at Tiryns.21 However, pomegranate charcoal has been identified at the site of Akrotiri,22 in contexts dating from the Early to the Late Bronze Age, indicating continuity in the presence and use of the tree at the site. In addition, and very importantly, the presence of pomegranate in the Akrotiri charcoal assemblage serves as a *terminus ante quem* for its introduction in the Aegean, much earlier than was originally thought. In addition, the presence of the charcoal and hence the tree itself on this Aegean island suggests the cultivation of the tree rather than only the use of its fruit or seeds, which could have been imported. Pomegranate has been and still remains symbolically associated with fertility and rites of passage. This has been explained by the vibrant colors of its skin, the blood red juice and the abundance of its seeds.23 The association of pomegranates with ritual belief in texts and artefacts is much more evident from the 9th to 8th centuries BC,24 when the Iron Age use of pomegranate fruits as decorative motifs charged with symbolic meaning is known in both the core and peripheral lands of ancient Mesopotamia. Pomegranate seeds are more abundant after the Bronze Age in Greece, starting with the Geometric period and the site of Krania in Macedonia,25 through the Classical, where they have been associated with funerary rites.26 In modern Greece pomegranate is an important ingredient in food prepared both for weddings and for funerals: in combination with boiled wheat, sugar, raisins and pine nuts, it is used to mark rites of passage in human life.

It has been suggested that pomegranates could be classified as luxury items in the Late Bronze Age eastern Mediterranean, or as intended for elite consumption.27 This suggestion has been based on the observation that all the finds of pomegranate come from discretely mid- to high status locations, with carefully crafted artefacts of rare materials, such as ivory and gold. The iconographic evidence also tends to illustrate this pattern.28 In addition, the archaeobotanical evidence of fruits and seeds is predominantly found in either elite residences or in ritual contexts.

The third area of interest at Petras is Ceremonial Area 1 (Late Prepalatial and Protopalatial). This remarkable zone, just outside the house tomb complexes, is composed primarily of great quantities of pottery suggestive of eating and drinking as well as structured, ritual deposition of specific objects.29 Among the other finds, large numbers of grape pips, whole well-preserved grape fruits and pieces of whole fig fruits as well as seeds have been recovered.

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22 Asouti 2003.
29 Tsipopoulou pers.comm.
On the basis of experimental work (Margaritis and Jones 2006), the remains from Petras may represent either raisins or small fresh grapes: the distinction is not possible due to the fragmentation of the material.

The most usual representation of figs in the archaeobotanical record is by loose seeds, which are present at Petras, but here they are also represented by whole figs, which have also been found in other funerary and ritual contexts.\(^{30}\)

Flax, also found at House Tomb 5 and Room 10, also deserves further analysis. The cultivation and use of flax (Linum usitatissimum) has not received a lot of attention until recently, but the situation has changed partly due to the developed focus on textile production in antiquity. In Crete, the earliest finds of flax come in Late Neolithic I levels,\(^{31}\) where on the basis of measurements it was suggested that the seeds belong to cultivated flax and not to its wild form,\(^{32}\) and when for first time spindle whorls and seemingly also shuttles and loomweights also appear.\(^{33}\) It has been suggested that according to the size of the seeds it could be possible to determine how the flax was used, whether for food or medicinal use or for its fibers and its oil. When used for fiber it is harvested early, before the seeds are fully ripened, while it would be fully ripened when used to produce oil. The flax seeds from Petras are too fragmented to carry out relevant measurements. They are the first ones deriving from a funerary context and add to the finds from the domestic contexts of Mochlos,\(^{34}\) Papadiokambos\(^{35}\) and the industrial site of Pelka at Pachia Ammos, where they are found in association with purple dye production.\(^{36}\)

In the three areas discussed grape is present throughout, olive only in the house tombs and figs only in Ceremonial Area 1. Barley, pomegranate and flax appear only in the house tombs in small quantities, barley in House Tomb 3 and pomegranate and flax in House Tomb 5.

A first point is that these crops have been found in domestic contexts from the Neolithic onwards all over Greece; on the other hand, we do not often find concentrations of raisins and figs in domestic contexts, but similar finds have been retrieved in funerary and other ritual contexts from later periods. Pomegranates in later times have strong religious associations with fertility and rites of passage and the finds from Petras (funerary) and Gournia (evidence of feasting) come as an addition to contexts that at least are not merely domestic.

The second point is that these plant remains were not preserved after a fire destruction, or during cooking or cleaning of an area with fire. In other funerary contexts, plant remains might be preserved in funerary pyres near the grave, as happens in the Classical period; or during cremations they could potentially be preserved depending on how close they were to the fire or at which stage of the ritual they were added. At Petras, the charred archaeobotanical remains are not the result of a primary fire destruction taking place inside the house tombs; rather, they represent the result of a secondary episode, a secondary rite, perhaps occurring as deposition in parallel with the human bones, or later, in some separate intervention.

A similar process applies also to Ceremonial Area 1 where the grapes and figs were burnt somewhere else and brought to be deposited in the ceremonal area, together with the broken pottery and broken stone vessels. There is no evidence of in situ burning in the area, as shown by the lack of any substantial quantities of charcoal in those areas.

The preservation of archaeobotanical remains in funerary contexts without any in situ burning, as in the case of Petras, has also been observed elsewhere.

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30 Margaritis 2014.
31 Tomkins 2010.
32 Sarpaki 2013.
33 Tomkins pers. comm.
34 Margaritis forthcoming b.
35 Margaritis under study.
36 Margaritis forthcoming a.
The first example comes from the site of Avgi located in the northwestern part of Greece. Within the habitation area and between two buildings several minute vessels were excavated, two of which contained the cremated cranial bones of an adult and an infant, dated to the early 5th millennium. The bones were placed in the bottom of the vessels, and the rest of their volume was full of charred seeds. The hundreds of well-preserved seeds found in the vessels were identified as lentils, a crop which has been recovered within the domestic areas of the site. It has been suggested that the cremation took place elsewhere and then the vessels were placed in this domestic area of the site with a selection of the fragmentary bones. The study of the bones has shown that the body was burned while still fleshed, pyre temperatures reached at least 700°C and exposure to high temperatures was probably a lengthy procedure. The high fragmentation of the bones has been interpreted as the result of the continuous addition of fuel during the burning process and the consequent mixing of pyre debris with long sticks. The charring, deposition and preservation of the lentil seeds requires its own consideration. The seeds would have not survived the high temperatures indicated for the funerary pyre without turning into ash. They may either have been placed on the ashes when the pyre had cooled down, or they may have been charred elsewhere in a separate process, then being placed in the vessels to accompany the cremated bones. This indicates multiple strands and stages of action in these complex burial rites, which are only revealed when all the evidence is considered as a whole.

The second example comes from a simple inhumation at the site of Aspis at Argos in the Pelopon nese, dated to the Middle Helladic period. Above the grave, an ashy layer was removed, which may have been connected with the burial, excavated below. The body belonged to a 9- or 10-year-old buried in a contracted position, and laid on top of the floor of the grave. The only finds deposited in the grave were two olive fruits, charred and preserved complete, laid on top of the pebble floor next to the skeleton. The fill around the skeleton had minute charcoal fragments which might have been part of the ashy layer found above. The olive fruits were found at a lower level and their size and excellent preservation suggest that they were deposited next to the body rather than having been part of the layer above. In addition, the sample from which they were recovered did not contain any charcoal fragments, as was the case with all the samples taken from the area of the skeleton. The olives most likely were not burnt in situ but rather were deposited already charred.

A similar situation has been detected in a Middle Helladic burial excavated at the site of Kirrha in central Greece, inside a built grave. It is probable that the grave was built in a pit already open, and in the cist, a pebble floor was first installed before the inhumation of a child, aged 4-5 years. The body was found in contracted position, and just above the floor of the grave and next to the skeleton, a concentration of grass peas was revealed, which represented the only material other than the skeleton found in the grave, as in the case of Aspis. No charcoal was found in association with the sample, and no other seeds at all were found in the upper layers of the grave, or indeed above the grave. In both the burials from Argos and Kirrha, the deposition of carbonized material was a specific part of the funerary process, taking place at the same time as the deposition of the corpse, and before the grave was closed.

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37 Stratouli et al. 2010.
38 Margaritis under study.
39 Stratouli et al. 2010.
40 Phillipa-Touchais et al. 2014.
41 Margaritis 2014.
42 Lagia et al. forthcoming.
43 Margaritis 2014.
At Petras, where the archaeological sequence is inevitably much more complex than with these simpler tombs, some similarities can be suggested. The olives, grapes, pomegranates and flax seeds were not burnt in the house tombs: they were charred somewhere else. It is difficult to determine whether they were part of the original burial of the bodies and were then selected and transferred with them into the house tombs during their secondary deposition; or whether they were initially deposited then, as part of the secondary deposition in the house tombs.

Whenever the action was carried out, the plants were selected, the fire was prepared, the materials were consigned to the fire in such a way that they could be retrieved intact, and then they were placed within the grave next to the dead.

The charring process of the plants was not left to chance, but was controlled, showing a level of expertise. The fact that the plant remains are relatively well preserved might favor the hypothesis that they are the product of a late act of deposition.

The example of Petras, together with those of Avgi, Aspis and Kirrha, represent instances of plant deposition distinct in time, place and mode of ritual action. The common element of these contexts is not merely the deposition of plant material, but the deposition of charred plant remains. This highlights the importance of fire in ritual practices, and suggests the presence of carbonized plants as representing an act not only of destruction but also of preservation through transformation and sacrifice.\[44\] Not all contexts at Petras evidenced these practices, however. Room 9 of House Tomb 5 was also sampled extensively but the samples did not reveal any plant remains. This emphasizes that deposition of plant remains, while not uncommon, is not universal. Careful consideration of context will lead to much more nuanced analyses here. The role of fire has an obvious parallel in the rites of cremation, which is a complex composite act resulting in the transformation and consumption of the body through fire. One aspect of the deposition of burnt seeds and fruits in the grave is to act as a metaphor for transformation: the deliberate act of transformation and consumption by burning. However, in burials that do not involve cremation, the transformation of the plants through charring can also act as a metaphor for the transformations that the body undergoes after death, including both natural processes and cultural practices.

The key point with the material under discussion here is the specific action designed to preserve the materials. The plant remains can also be seen as a case of deliberate transformation of material accompanying the dead or marking particular rituals, where the charring of the seeds did not aim at their complete destruction but rather at their preservation through fire. The deposition of the charred seeds of olives, grapes, pomegranates and flax at Petras, along with similar instances at the other sites mentioned, involved a controlled charring process, perhaps charring the plant materials in a vessel at a controlled temperature as already suggested in order to produce the transformed and excellently preserved plant materials recovered in each of these cases. The charred plants would be preserved and so visible on reopening the graves. This preservation would not have been accomplished had the seeds been deposited raw; and had they been burnt in an uncontrolled manner, it is also unlikely they would have been preserved. Preservation is the intended aim of these controlled actions.

The species present in the ritual arena of Petras are widely used and are commonly present in domestic assemblages from the Neolithic period onwards, with the exception of pomegranate, which comes later. One might speculate about their relevance to the identity of the dead or the importance of the cultivation of specific species in different areas. The choice of plants is unlikely to be random, but this suggestion needs further exploration with the study of more materials in order to identify any

\[44\] Margaritis 2014.
possible pattern. They could be connected with the agricultural year, and the repetition of agricultural activities, connecting the dead with the everyday. It could also be possible that the activities undertaken at the hearth of the house, the everyday cooking, could be representative of what is brought from the house to the grave – including the fire of the hearth, representing domestic everyday activities. Evidence for the fragmentation, circulation, preservation and representation of human remains in different funerary, religious and domestic contexts may indicate contrasting engagements between the living and the dead in which bodies, bones and material culture may have held an agency influencing remembrance. In a similar way, the burnt seeds, the sacrificed plants, remain preserved though fire as a token of memory for the remembrance of specific rites of passage, connecting the dead or the deities with the everyday. However these generalized attempts to intuit meaning underplay the specific agency involved in the charring and deposition of the particular materials. While it is evident these materials may act as mnemonic signifiers of food and related aspects of life, these particular remains did not function merely as food or components of feasts: they may however represent a portion of a larger cohort, some of which may have been used as food while the smaller portion was charred for deposition. In addition, the sensory effect created during the burning of the seeds, such as the smells or the way they are burnt, would also have formed an important aspect of the depositional process of the plant material. Although none of the materials burnt would have produced a spectacular effect, the importance of smell has not yet been carefully considered and may have been relevant. In this context, the presence of pine cones in ritual contexts of the historical periods may be explained with reference to their sensory effects (as they produce a lot of flame and noise) as they are burnt. These are new research questions which need further consideration.

Discussion

MacGillivray: That was brilliant. I thought it was really interesting, because we do not know much about the Cretan attitude to fire. For instance you said that they brought the fire from the house and there are only a couple of hearths in Minoan Crete; this feature is in general extremely rare in domestic contexts. I agree that the fire is something you transport. That is what you have in art. Nanno Marinatos talked about lamps that obviously played a very important role in the rites and obviously they had a significant symbolic value.

Margaritis: I think that what connects all these case studies – and there are more, but I did not have time – is fire and how it was used, not only in everyday life, but also in these kind of rituals. I mentioned that you usually have plant remains, because the interesting thing for me here is that you do not have fire, as there are no cremations in the cemetery. In our minds of course, we have evidence for Roman or Iron Age cremations, but are there any plants cremated? And we think that when there were cremations, whatever they put next to the fire would be preserved. However, the situation is more complicated than that. The temperature during the cremation is so high that it is not very easy for plant remains to actually be preserved. So we need to understand or to consider that it was not a straightforward action to use plants as offerings during the cremation. They deposited the plants either after the cremations, or in the periphery of the cremation fire, so that they could be preserved. And for that the role of fire is very significant. Again, and I need to stress it more, the plant remains are very well preserved, and we have to remember that, if there is a fire, or even a domestic hearth, and you throw seeds into it, they are going to be burnt completely. But here we have very good preservation; you saw the figs and the raisins, they look like you could eat them, and also the olives from Aspis, and these did not become preserved by accident. They were doing very specific things, possibly in vessels and then bringing the vessels to the cemetery. I say vessels because in a vessel the fire can be controlled. They wanted the food to be charred to a good stage of preservation. Fire is the key, I think.

Schoep: Do you have any idea about the temperature?

Margaritis: For grapes and olives, it depends on how intense the fire is and the time of exposure. After 500 degrees you do not have well-preserved plant remains.
Vavouranakis: I was actually going to ask you a similar question but in a more empirical way. How do we envisage this process in practical terms? They were in a bowl or in a cookpot and then they put coal on it, or just leave them to overcook?

Margaritis: I do not know. What I could say is that there was a very interesting workshop last year in Uppsala where they wanted to re-create animal sacrifices. So they built the fire for the sacrifice, they put the pigs and the sheep on the fire, and also they tried to put plant remains on it to see how they reacted. Sevi Triantaphyllou can confirm that pigs are used for experiments concerning cremations of humans.

Triantaphyllou: I, personally, am not using them.

Margaritis: The only things that survived were the figs they put around the cremation fire, in vessels. They survived and they were identifiable. The rest went into ash. The other interesting and relevant thing is that we put wine, into the high temperatures and it boiled (I was thinking that it would evaporate); it went out of the amphora and then condensed back again. In the beginning, before we saw the cremation and everything maybe we had in our minds that they were possibly burning things for the smell, but the overwhelming sensation is the fire and the smoke that goes up, not the smell.

Triantaphyllou: Thank you very much Evi Margaritis, I think we can combine our results. Do not forget that fire is a very crucial element for metal technology, as well. So, as you said, those people knew a lot about how to handle and manipulate fire. My feeling is that the kind of rituals that you mentioned involving seeds may have to do with some intermediate stages of the mortuary behavior and with different stages of decomposition of the bodies. This is what we will try to argue in our papers. I would think that because they have bodies in different decomposition stages they would have probably wanted to clean away evidence of the transformations of the bodies; they may have taken body parts outside and away from the house tombs and they may have done something like the procedures you described.

Margaritis: And then put them back again.

Triantaphyllou: Exactly. So probably your stuff is involved with an intermediary stage.

Margaritis: Yes. This is certainly a possibility, but it is very difficult to pinpoint in which stage it actually happened. The thing with Petras, and I am very excited about it, is that, because we have so many different case studies, we can be even more specific about the sampling and know exactly where our samples were found, so maybe we will be able to reconstruct the rituals. If we cannot do it at Petras, we are unlikely to be able to do it anywhere else, because of the content we are digging there and the variety of the material. Also we need to talk to the people researching the animal bones and the shells.

Triantaphyllou: Also, about the temperatures, the temperature for the human bones depends on how much flesh there is on the bone; the charred bones would demonstrate a high temperature because there would have been flesh on the bone to start with.
Greek abstract

Τα φυτικά κατάλοιπα από τα ταφικά κτήρια και το Χώρο Τελετουργιών 1 του Πετρά: πράξεις καταστροφής, μεταμόρφωσης και διατήρησης

Πώς μπορούμε να ερμηνεύσουμε ευρήματα φυτικών καταλοίπων σε τελετουργικά περιβάλλοντα; Είναι αυτά τα ευρήματα τυχαία ή το αποτέλεσμα πράξεων καταστροφής και μεταμόρφωσης; Η πρόσφατη έρευνα ερευνά πως η θέση καταστροφής των θεμελιωδών ύψων του παρελθόντος; γεωργία, εξηρευνώντας περιβαλλοντική αλλαγή, διατήρηση, οικονομική ζωή, αλλά και καθημερινή ζωή. Ένα κλείδι που έλειπε ήταν η θέση των τελετουργίων; η παρούσα ανακοίνωση εξερευνά τη χρήση των φυτών σε περιβάλλον τελετουργικά και ταφικά, αναλύοντας μια εντελώς νέα πηγή δεδομένων για την Ευρώπη και τη Μεσόγειο; μια μεγάλη βάση δεδομένων αρχαιοβοτανικών λειψανών από την Προϊστορική Ελλάδα.

Το τελετουργικό, η λατρεία και η θρησκεία είναι επιστημονικά πεδία στα οποία έχει επικεντρωθεί η Ελληνική αρχαιολογία, εστιάζοντας ιδιαίτερα στην αρχιτεκτονική, την κεραμική και άλλες όψεις του υλικού πολιτισμού και χρησιμοποιώντας θεωρητικά ιστολόγια με τις ταφικές πρακτικές. Για την Εποχή του Χαλκού στην Ελλάδα, προτάθηκε ότι θρησκευτικά τελετουργικά, εορτασμοί και ιδιαίτερα τελετουργίες μεταβάσης είχαν περιελάβει στο γεώργικό έτος και την θρησκευτική αλλαγή, διατήρηση και καθημερινή ζωή. Ωστόσο, η ανακοίνωση χρησιμοποιεί τον Πετρά ως ερευνητικό παράδειγμα στην Ελλάδα και δείχνει ότι η σημασία της σημερινής καταστροφής και διατήρησης φωτιάς στην Ελληνική τελετουργική πράξη.